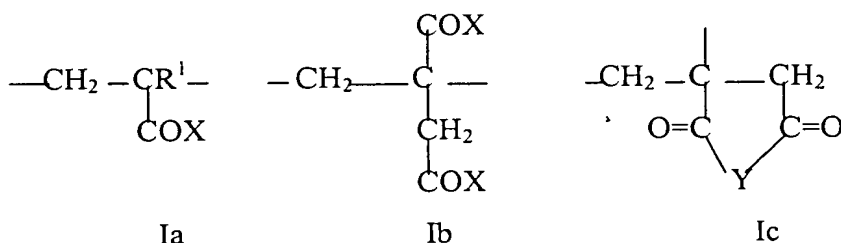


## AMENDMENTS TO THE CLAIMS

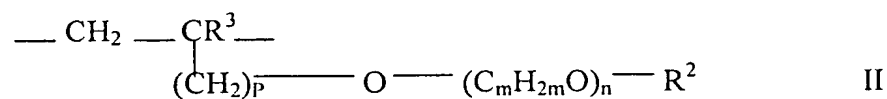
This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A fluidising admixture for use with sprayable cementitious compositions, the admixture consisting of:
  - (1) 2-phosphonobutane-1,2,4-tricarboxylic acid;
  - (2) optionally, citric acid; and
  - (3) at least one polymer derived from ethylenically-unsaturated mono-or dicarboxylic acids, and characterised in that the polymer consists of:
    - a) 51-95 mole % of moieties of formula 1a and/or 1b and/or 1c



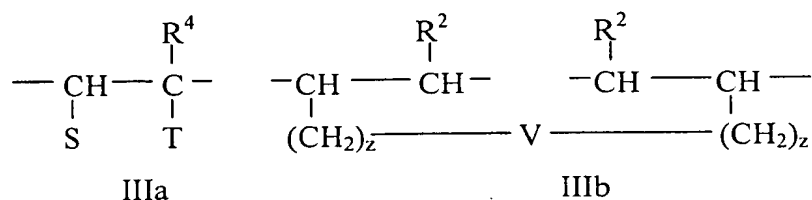
wherein  $R^1$  = hydrogen or a  $C_{1-20}$  aliphatic hydrocarbon residue;  
 $X = O_a M$ ,  $-O-(C_m H_{2m} O)_n - R^2$ ,  $-NH-(C_m H_{2m} O)_n - R^2$ ,  
 $M$  = hydrogen, a mono- or divalent metal cation, an ammonium ion or an organic amine residue;  
 $a = 0.5$  or  $1$ ;  
 $R^2$  = hydrogen,  $C_{1-20}$  aliphatic hydrocarbon,  $C_{5-8}$  cycloaliphatic hydrocarbon or optionally substituted  $C_{6-14}$  aryl residue;  
 $Y = O$ ,  $NR^2$ ;  
 $m = 2-4$ ; and  
 $n = 0-200$ ;

b) 1-48.9 mole% of moieties of the general formula II

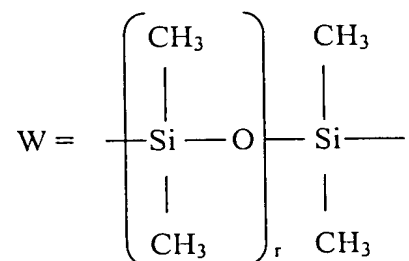


wherein  $\text{R}^3$  = hydrogen or  $\text{C}_{1-5}$  aliphatic hydrocarbon;  
 $p = 0-3$ ; and  
 $\text{R}^2$  has the meaning given previously;

c) 0.1-5 mole % of moieties of Formulae IIIa or IIIb

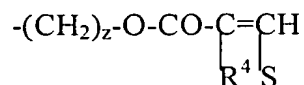
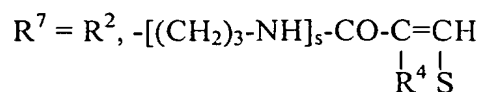
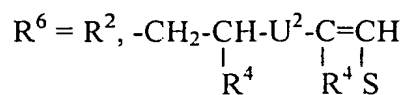


wherein  $\text{S} = \text{H}, -\text{COO}_a\text{M}, -\text{COOR}^5$   
 $\text{T} = \text{U}^1\text{---}\underset{\text{CH}^3}{\text{CH}}\text{---CH}_2\text{---O)}_x\text{---(CH}_2\text{---CH}_2\text{O)}_y\text{R}^6$   
 $-\text{W-R}^7$   
 $-\text{CO-[NH-(CH}_2\text{)}_3\text{]}_s\text{---W-R}^7$   
 $-\text{CO-O-(CH}_2\text{)}_z\text{---W-R}^7$   
 $-(\text{CH}_2)_z\text{---V-(CH}_2)_z\text{---CH=CH-R}^2$   
 $= -\text{COOR}^5$  when  $\text{S}$  is  $-\text{COOR}^5$  or  $\text{COO}_a\text{M}$   
 $\text{U}^1 = -\text{CO-NH-}, -\text{O-}, -\text{CH}_2\text{O-}$   
 $\text{U}^2 = -\text{NH-CO-}, -\text{O-}, -\text{OCH}_2\text{-}$   
 $\text{V} = -\text{O-CO-C}_6\text{H}_4\text{-CO-O-}$  or  $-\text{W-}$



$\text{R}^4 = \text{H}, \text{CH}_3$

$R^5$  = a  $C_3$ - $20$  aliphatic hydrocarbon residue, a  $C_5$ - $C_8$  cycloaliphatic hydrocarbon residue or a  $C_6$ - $14$  aryl residue;



wherein

$$r = 2-100$$

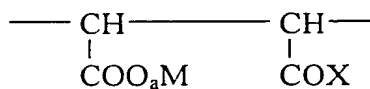
$$s = 1, 2$$

$$z = 0-4$$

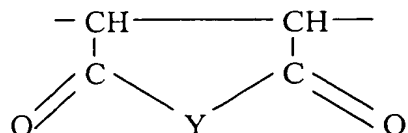
$$x = 1-150$$

$$y = 0-15; \text{ and}$$

d) 0-47.9 mole % of moieties of the general formula IVa and / or IV b:



IVa



IVb

wherein a, M, X and Y have the ~~significances hereinabove defined~~ meanings defined above.

2. (Currently Amended) A fluidising admixture according to claim 1, in which:

a) the moiety is according to formula Ia;

$R^1, R^2$  are independently H or  $CH_3$ ;

$X = O_a M, -O-(C_m H_{2m}O)_n-R^2$

M = H or a mono-or divalent metal cation;

a = 1;

Y = O,  $NR^2$ ;

m = 2-3; and

n = 20-150;

b)  $R^2, R^3$  are independently H or  $CH_3$ ; and

p = 0-1; and

c) the moiety is according to formula IIIa;

S = H,  $-COO_aM$ ,  $-COOR^5$

$T = U^1 - (\underset{\underset{CH^3}{|}}{CH} - CH_2 - O)_x - (CH_2 - CH_2 - O)_y R^6$

$-CO - [NH - (CH_2)_3]_s - W - R^7$

$-CO - O - (CH_2)_z - W - R^7$

$R^4, R^5$  are independently H,  $CH_3$ ;

$R^6 = R^2, -CH_2 - \underset{\underset{R^4}{|}}{CH} - U^2 - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

$R^7 = R^2, -[(CH_2)_3 - NH]_s - CO - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

$-(CH_2)_z - O - CO - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

wherein

$U^1 = -CO - NH - \underset{\underset{|}{|}}{O}, -CH_2 - O -$

$U^2 = -NH - CO - \underset{\underset{|}{|}}{O}, -OCH_2 -$

$U^1 = -CO - NH - , -O - , -CH_2 - O -$

$U^2 = -NH - CO - , -O - , -OCH_2 -$

x = 20-50;

y = 1-10; and

z = 0-2.

3. (Currently Amended) A fluidising admixture according to claim 2, in which:

a) the moiety is according to formula Ia;

$R^1 = H$ ;

$R^2 = CH_3$ ;

X =  $O_a M$ ;

M = a mono-or divalent metal cation;

Y = O,  $NR^2$ ;

m = 2; and

n = 25-50;

b)  $R^2, R^3 = H$ ; and

p = 0; and

c) the moiety is according to formula IIIa;

S = H,  $-\text{COO}_a\text{M}$ ;

$T = \text{U}^1 - (\text{CH}-\text{CH}_2-\text{O})_x - (\text{CH}_2-\text{CH}_2\text{O})_y \text{R}^6$   
 $\quad \quad \quad |$   
 $\quad \quad \quad \text{CH}^3$

$-\text{CO}-\text{O}-(\text{CH}_2)_z-\text{W}-\text{R}^7$

$R^4, R^5 = H$ ;

$R^6 = R^2, -\text{CH}_2-\underset{\substack{| \\ R^4}}{\text{CH}}-\text{U}^2-\underset{\substack{| \\ R^4}}{\text{C}}=\underset{\substack{| \\ S}}{\text{CH}}$

$R^7 = R^2, -[(\text{CH}_2)_3-\text{NH}]_5-\text{CO}-\underset{\substack{| \\ R^4}}{\text{C}}=\underset{\substack{| \\ S}}{\text{CH}}$

$-(\text{CH}_2)_z-\text{O}-\text{CO}-\underset{\substack{| \\ R^4}}{\text{C}}=\underset{\substack{| \\ S}}{\text{CH}}$

wherein

$\text{U}^1 = -\text{CO}-\text{NH}-$ ;

$\text{U}^2 = -\text{NH}-\text{CO}-, -\text{O}-, -\text{OCH}_2-$

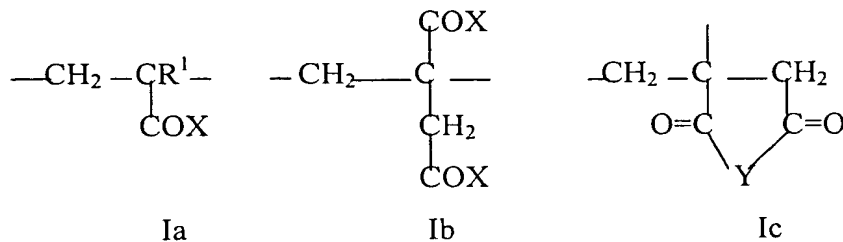
x = 20-50;

y = 5-10; and

z = 1-2.

4. (Currently Amended) A method of imparting flow to a cementitious composition, comprising the addition thereto of [[an]] the admixture according to any one of claims of claim 1 [[ -3 ]].
5. (Currently Amended) A method of spraying a cementitious composition comprising [[by]] preparing a cementitious mix and conveying the mix to a spray nozzle, there being added to the mix at preparation [[an]] the admixture according to of claim 1.
6. (New) The admixture of claim 1 wherein the polymer has a weight-average molecular weight of from about 5,000 to about 50,000.

7. (New) The admixture of claim 1 wherein the polymer has a weight-average molecular weight of from about 10,000 to about 40,000.
8. (New) The admixture of claim 1 wherein the proportions of the solids of the three components are:  
 Component 1 - about 1 % to about 40 %;  
 Component 2 - 0 to about 40 %; and  
 Component 3 - about 5 % to about 60 %.
9. (New) The method of claim 4 wherein the admixture is added at a rate of from about 0.2 % to about 2 % by weight solids of cement.
10. (New) A fluidising admixture for use with sprayable cementitious compositions, the admixture comprising:
  - (1) 2-phosphonobutane-1,2,4-tricarboxylic acid;
  - (2) optionally, citric acid monohydrate; and
  - (3) at least one polymer derived from ethylenically-unsaturated mono-or dicarboxylic acids, and characterised in that the polymer comprises:
    - a) 51-95 mole % of moieties of formula 1a and/or 1b and/or 1c



wherein  $R^1$  = hydrogen or a  $C_{1-20}$  aliphatic hydrocarbon residue;  
 $X = O_a M$ ,  $-O-(C_m H_{2m}O)_n-R^2$ ,  $-NH-(C_m H_{2m}O)_n-R^2$ ,  
 $M$  = hydrogen, a mono-or divalent metal cation, an ammonium ion or an organic amine residue;

a=0.5 or 1;

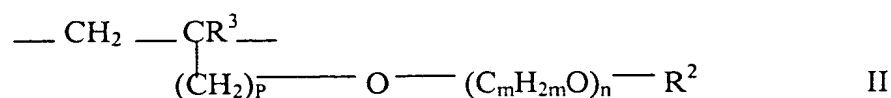
R<sup>2</sup> = hydrogen, C<sub>1-20</sub> aliphatic hydrocarbon, C<sub>5-8</sub> cycloaliphatic hydrocarbon or optionally substituted C<sub>6-14</sub> aryl residue;

Y= O, NR<sup>2</sup>;

m= 2-4; and

n= 0-200;

b) 1-48.9 mole% of moieties of the general formula II

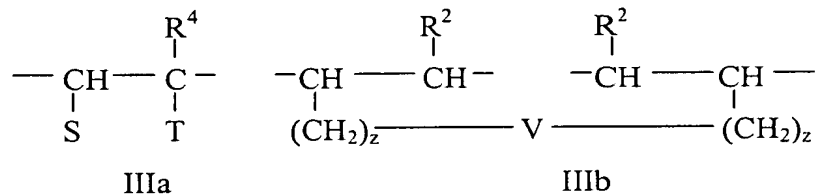


wherein R<sup>3</sup> = hydrogen or C<sub>1-5</sub> aliphatic hydrocarbon;

p = 0-3; and

R<sup>2</sup> has the meaning given previously;

c) 0.1-5 mole % of moieties of Formulae IIIa or IIIb



wherein S = H, -COO<sub>a</sub>M, -COOR<sup>5</sup>

T = U<sup>1</sup>-(CH-CH<sub>2</sub>-O)<sub>x</sub>-(CH<sub>2</sub>-CH<sub>2</sub>O)<sub>y</sub>R<sup>6</sup>  
 $\underset{\text{CH}^3}{\text{CH}}$

-W-R<sup>7</sup>

-CO-[NH-(CH<sub>2</sub>)<sub>3</sub>]<sub>s</sub>-W-R<sup>7</sup>

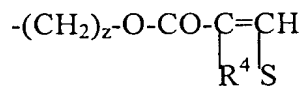
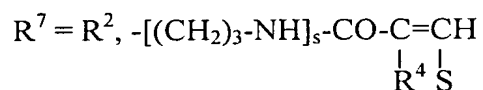
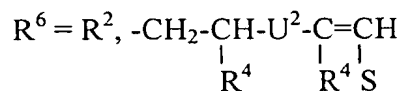
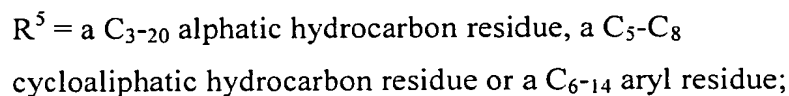
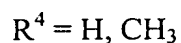
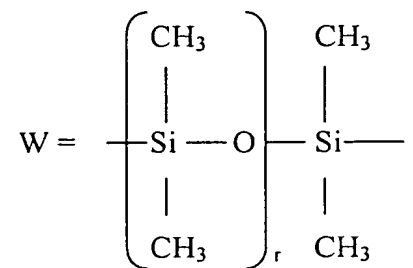
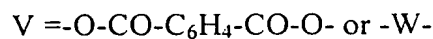
-CO-O-(CH<sub>2</sub>)<sub>z</sub>-W-R<sup>7</sup>

-(CH<sub>2</sub>)<sub>z</sub>-V-(CH<sub>2</sub>)<sub>z</sub>-CH=CH-R<sup>2</sup>

= -COOR<sup>5</sup> when S is -COOR<sup>5</sup> or COO<sub>a</sub>M

U<sup>1</sup> = -CO-NH-, -O-, -CH<sub>2</sub>O-

U<sup>2</sup> = -NH-CO-, -O-, -OCH<sub>2</sub>-



wherein

$$r = 2\text{-}100$$

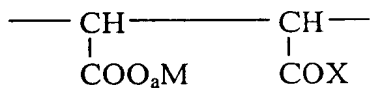
$$s = 1, 2$$

$$z = 0\text{-}4$$

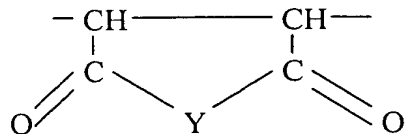
$$x = 1\text{-}150$$

$$y = 0\text{-}15; \text{ and}$$

d) 0-47.9 mole % of moieties of the general formula IVa and / or IV b:



IVa



IVb

wherein a, M, X and Y have the meanings defined above.



11. (New) A fluidising admixture according to claim 10, in which:

a) the moiety is according to formula Ia;

$R^1, R^2$  are independently H or  $CH_3$ ;

$X = O_a M, -O-(C_m H_{2m} O)_n - R^2$

$M = H$  or a mono-or divalent metal cation;

$a = 1$ ;

$Y = O, NR^2$ ;

$m = 2-3$ ; and

$n = 20-150$ ;

b)  $R^2, R^3$  are independently H or  $CH_3$ ; and

$p = 0-1$ ; and

c) the moiety is according to formula IIIa;

$S = H, -COO_a M, -COOR^5$

$T = U^1 - \underset{\underset{CH^3}{|}}{(CH-CH_2-O)}_x - (CH_2-CH_2O)_y R^6$

$-CO-[NH-(CH_2)_3]_s - W - R^7$

$-CO-O-(CH_2)_z - W - R^7$

$R^4, R^5$  are independently H,  $CH_3$ ;

$R^6 = R^2, -CH_2 - \underset{\underset{R^4}{|}}{CH} - U^2 - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

$R^7 = R^2, -[(CH_2)_3 - NH]_s - CO - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

$-(CH_2)_z - O - CO - \underset{\underset{R^4}{|}}{C} = \underset{\underset{S}{|}}{CH}$

wherein

$U^1 = -CO-NH-, -O-, -CH_2 O-$

$U^2 = -NH-CO-, -O-, -OCH_2-$

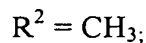
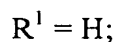
$x = 20-50$ ;

$y = 1-10$ ; and

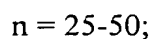
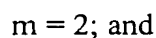
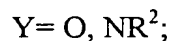
$z = 0-2$ .

12. (New) A fluidising admixture according to claim 11, in which:

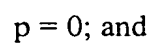
a) the moiety is according to formula Ia;



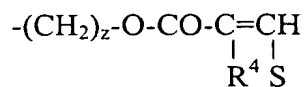
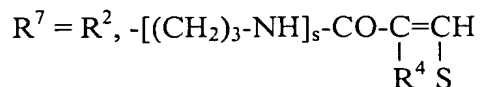
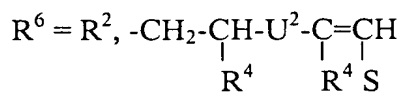
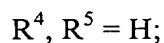
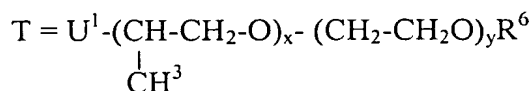
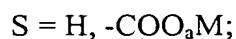
M = a mono-or divalent metal cation;



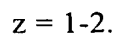
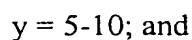
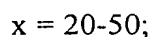
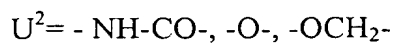
b)  $R^2, R^3 = H;$  and



c) the moiety is according to formula IIIa;



wherein



13. (New) A method of imparting flow to a cementitious composition, comprising the addition thereto of the admixture of claim 10.

14. (New) A method of spraying a cementitious composition comprising preparing a cementitious mix and conveying the mix to a spray nozzle, there being added to the mix at preparation the admixture of claim 10.
15. (New) The admixture of claim 10 wherein the polymer has a weight-average molecular weight of from about 5,000 to about 50,000.
16. (New) The admixture of claim 10 wherein the polymer has a weight-average molecular weight of from about 10,000 to about 40,000.
17. (New) The admixture of claim 10 wherein the proportions of the solids of the three components are:  
Component 1 - about 1 % to about 40 %;  
Component 2 - 0 to about 40 %; and  
Component 3 - about 5 % to about 60 %.
18. (New) The method of claim 13 wherein the admixture is added at a rate of from about 0.2% to about 2% by weight solids of cement.